



Sequence Listing

<110> Lin, Ching-Yu

Lin, Ruey-Wen

You, Chiou-Mien

Huang, Hsing-Hsuan

Lee, Bor-Heng

Lee, Hsien-Hsiung

Lin, Yu-Ju

Fan, Chih-Chun

Hsu, Han-Chuan

Shih, Chia-Wen

Yeh, Chih-Hsing

Kao, Yi-Feng

Pan , Chih-Long

Chan, Peter

<120> METHOD AND DETECTOR FOR IDENTIFYING SUBTYPES OF HUMAN PAPILLOMA VIRUSES

<140> US 10/601,497

<141> 2003-06-23

<160> 472

<210> 1

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 1

catccgtaac tacatcttcc 20

<210> 2

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 2

atccgtaact acatcttcca 20

<210> 3

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 3

ctacatcttc cacatacacc aa 22

<210> 4

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 4

catcttccac atacaccaat 20

<210> 5

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 5

atcttccaca tacaccaatt 20

<210> 6

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 6

ccacatacac caattctgat 20

<210> 7

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 7

tagcattaca ttgtctgctg aag 23

<210> 8

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 8

tccctctggt ttggaagac 19

<210> 9

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 9

gttatcgctt cccccaaatg gtacat 26

<210> 10

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 10

ctataggtat gtgcagtcac ag 22

<210> 11

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 11

gcccactcct gaaaaggaa 19

<210> 12

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 12

ctataagaac cttagt 16

<210> 13

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 13

atctgtgtct aaatc 15

<210> 14

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 14

tctgtgtcta aatctgctac 20

<210> 15

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 15

atctgtgtct aaatctgcta cataca 26

<210> 16

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 16

tgcattctgtg tctaaatctg 20

<210> 17

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 17

aaatctgcta catacactaa 20

<210> 18

<211> 21

<212> DNA

<213> Human Papilloma Virus

<400> 18

ctaaatctgc tacatacact a 21

<210> 19

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 19

ctacatacac taattcagat 20

<210> 20

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 20

tagcattaca ttatctgcag aag 23

<210> 21

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 21

tcctttctgtt ttggaggac 19

<210> 22

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 22

tttatcgctt ccaccaaattg gtacac 26

<210> 23

<211> 25

<212> DNA

<213> Human Papilloma Virus

<400> 23

ttatagatat gtacagtcac aggcc 25

<210> 24

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 24

acccacacct gaaaaagaaa aac 23

<210> 25

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 25

tatgtcatta tgtgctgcca 20

<210> 26

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 26

gtgctgccat atctacttca 20

<210> 27

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 27

tgccatatct acttc 15

<210> 28

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 28

tatctacttc agaaactaca 20

<210> 29



<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 29

ctacttcaga aactacatat aa 22

<210> 30

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 30

ataaaaatac taactttaag 20

<210> 31

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 31

caaaataacc ttaactgcag acg 23

<210> 32

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 32

ttccactatt ttggaggac 19

<210> 33

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 33

tctacaacct cccccaggag gcacac 26

<210> 34

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 34

ttatagggtt gtaacccag 19

<210> 35

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 35

acatacacct ccagcacct 19

<210> 36

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 36

ccttaaaaaa tacact 16

<210> 37

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 37

ttctacacag tctcc 15

<210> 38

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 38

cagtctcctg tacctgggca 20

<210> 39

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 39

agtctcctgt acctgggcaa 20

<210> 40

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 40

tctcctgtac ctgggcaata tga 23

<210> 41

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 41

ctgtacctgg gcaatatgat 20

<210> 42

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 42

atgatgctac caaatTTaag 20

<210> 43

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 43

tactattact ttaactgcag atg 23

<210> 44

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 44

tagcagtatt ttagaggat 19

<210> 45

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 45

tggtcccccc cccccaacta ctagtt 26

<210> 46

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 46

atatcggtttt gtacaatctg tt 22

<210> 47

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 47

ggatgctgca ccggctgaa 19

<210> 48

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 48

ctatgataag ttaaag 16

<210> 49

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 49

tagtacatta tctgcagcat 20

<210> 50

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 50

attatctgca gcatc 15

<210> 51

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 51

tgcagcatct gcatccactc 20

<210> 52

<211> 24

<212> DNA

<213> Human Papilloma Virus

<400> 52

gcattctgcat ccactccatt taaa 24

<210> 53

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 53

ctccatttta accatctgat 20

<210> 54

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 54

taaaataaca cttacaacag atg 23

<210> 55

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 55

..  
:  
tgcctccata ttggaggat 19

<210> 56

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 56

actaacctta cctcccactg ctagtt 26

<210> 57

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 57

ctataggttt attaaaaact ct 22

<210> 58

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 58

taacgcccct cctgtgcca 19

<210> 59

<211> 15

<212> DNA

<213> Human Papilloma Virus



<400> 59

tgcaattgca aacag 15

<210> 60

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 60

gcaattgcaa acagtgatac 20

<210> 61

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 61

caattgcaaa cagtgatact 20

<210> 62

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 62

gcaaacagtg atactacatt taa 23

<210> 63

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 63

ctacatttaa aagtagtaat 20

<210> 64

<211> 23

<212> DNA

<213> Human Papilloma Virus \

<400> 64

caaaataaca ttatctgcag aca 23

<210> 65

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 65

tcctgctatt ttggaagat 19

<210> 66

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 66

attgaccaca cctccctcag gttctt 26

<210> 67

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 67

ctataggttt gtcacctcac ag 22

<210> 68

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 68

aactgcccc caaaagccc 19

<210> 69

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 69

tgctactgta acaactgaag 20

<210> 70

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 70

gctactgtaa caactgaaga 20

<210> 71  
<211> 15  
<212> DNA  
<213> Human Papilloma Virus

<400> 71

tactgtaaca actga 15

<210> 72  
<211> 20  
<212> DNA  
<213> Human Papilloma Virus

<400> 72

actgtaacaa ctgaagacac 20

<210> 73  
<211> 22  
<212> DNA  
<213> Human Papilloma Virus

<400> 73

caactgaaga cacatacaag tc 22

<210> 74  
<211> 23  
<212> DNA  
<213> Human Papilloma Virus

<400> 74

caaaattaca ttatctgtag agg 23

<210> 75

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 75

tcctgacata ctagacgat 19

<210> 76

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 76

tgtagctcca ccgccctctg gtactt 26

<210> 77

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 77

ttatagattt gtgcagtctc ag 22

<210> 78

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 78

taaggtaaca gcacctgaa 19

<210> 79

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 79

tttttctgac tattca 16

<210> 80

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 80

tatgcacaca agtaactagt 20

<210> 81

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 81

cacacaagta actag 15

<210> 82

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 82

acaagtaact agtgacagta 20

<210> 83

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 83

gtaactagtg acagtacata taa 23

<210> 84

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 84

gtacatatataa aaatgaaaat 20

<210> 85

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 85

caaagttacc ttaactgcag aag 23

<210> 86

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 86

tccagatatt ttagaagat 19

<210> 87

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 87

tttaacacct cctccatctg ctagtt 26

<210> 88

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 88

ctataggttt gttacctctc ag 22

<210> 89

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 89

aacagtacct ccaaaggaa 19



<210> 90  
<211> 16  
<212> DNA  
<213> Human Papilloma Virus

<400> 90

cttaggtaaa tataca 16

<210> 91  
<211> 20  
<212> DNA  
<213> Human Papilloma Virus

<400> 91

tctgctgtgt cttctagtga 20

<210> 92  
<211> 15  
<212> DNA  
<213> Human Papilloma Virus

<400> 92

tgctgtgtct tctag 15

<210> 93  
<211> 20  
<212> DNA  
<213> Human Papilloma Virus

<400> 93

gtgtcttcta gtgacagtac 20

<210> 94

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 94

cttctagtga cagtacatat aaa 23

<210> 95

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 95

gtacatatataa aaatgacaat 20

<210> 96

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 96

taaaataaca ctaacagcag atg 23

<210> 97

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 97

cccgtccatt ttagaggat 19

<210> 98

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 98

ccttacacca ccgccttctg gtacct 26

<210> 99

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 99

atatcgctat gtaacatcac ag 22

<210> 100

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 100

accagtgca ccaaaacct 19

<210> 101

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 101

tgtctactga caatg 15

<210> 102

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 102

tgtctactga caatggcgaa 20

<210> 103

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 103

tgacaatggc gaagttacag 20

<210> 104

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 104

gacaatggcg aagttacaga 20

<210> 105

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 105

aatggcgaag ttacagaata 20

<210> 106

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 106

cagaatataa ttctcaaaca 20

<210> 107

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 107

taaagttcct ttaaaggctg agg 23

<210> 108

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 108

ttctggtata ttggaagag 19

<210> 109

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 109

atttgtacct actccagata attcag 26

<210> 110

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 110

ttataggtac attaattcaa ag 22

<210> 111

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 111

tgcagttggt gaaaaagaa 19

<210> 112

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 112

ctttgcaaaa tataca 16

<210> 113

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 113

ctctatagag tcttc 15

<210> 114

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 114

tagagtcttc cataccttct 20

<210> 115

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 115

atagagtctt ccataccttc 20

<210> 116

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 116

gtcttccata ccttctacat atg 23

<210> 117

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 117

ctacatatga tccttctaag 20

<210> 118

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 118

tactgtcaca ttaacaactg atg 23

<210> 119

<211> 18

<212> DNA

<213> Human Papilloma Virus

<400> 119

ttcctctata ttggacaa 18

<210> 120

<211> 26

<212> DNA



<213> Human Papilloma Virus

<400> 120

tgtagctcct ccaccatctg ccagtt 26

<210> 121

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 121

ttacagatac ctacagtctg ca 22

<210> 122

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 122

ggatgctcca gcacctgaa 19

<210> 123

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 123

atatgacggt ctaaag 16

<210> 124

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 124

tatatgttgg ggaaatcagc ta 22

<210> 125

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 125

cactgcaaca tctggtgata 20

<210> 126

<211> 30

<212> DNA

<213> Human Papilloma Virus

<400> 126

gcaacatctg gtgatacata tacagctgct 30

<210> 127

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 127

cattaactgt tgaagttatg tca 23

<210> 128

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 128

çctaacatat tagaggagtg gaatgt 26

<210> 129

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 129

caccaccacc ttcaggaact 20

<210> 130

<211> 24

<212> DNA

<213> Human Papilloma Virus

<400> 130

gttataggta tgtacaatca gaag 24

<210> 131

<211> 30

<212> DNA

<213> Human Papilloma Virus

<400> 131

gctaaggtaa caacgccaga aaaaaaggat 30

<210> 132

<211> 24

<212> DNA

<213> Human Papilloma Virus

<400> 132

cagacttttg gttttgggag gtaa 24

<210> 133

<211> 21

<212> DNA

<213> Human Papilloma Virus

<400> 133

gaaaagtttt ctactgattt a 21

<210> 134

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 134

catttgtttt gggaatcagt tg 22

<210> 135

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 135

tgaccctact gtgcccagta 20

<210> 136

<211> 30

<212> DNA

<213> Human Papilloma Virus

<400> 136

actgtgccca gtacatatga caatgcaaag 30

<210> 137

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 137

gtttatatatt caattatgca taa 23

<210> 138

<211> 21

<212> DNA

<213> Human Papilloma Virus

<400> 138

ccagagggtta tgacatatat t 21

<210> 139

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 139

cccacattat tagaggactg gaa 23

<210> 140

<211> 21

<212> DNA

<213> Human Papilloma Virus

<400> 140

ccacctgcct ctgcttcttt g 21

<210> 141

<211> 25

<212> DNA

<213> Human Papilloma Virus

<400> 141

cgcttttttgt ctaacaaggc cattg 25

<210> 142

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 142

ccaaaggaac gggaggatcc cta 23

<210> 143

<211> 25

<212> DNA

<213> Human Papilloma Virus

<400> 143

cttacagaaa agttttctgc acaac 25

<210> 144

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 144

tgccactaca cagtc 15

<210> 145

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 145

ctacacagtc ccctccgtct 20

<210> 146

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 146

tgccactaca cagtcacctc 20

<210> 147

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 147

cagtcctcctc cgtctacata ta 22

<210> 148

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 148

ctacatatatc tagtgaacaa 20

<210> 149

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 149

tagtattacc ttaacggcgg agg 23

<210> 150

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 150



tgctggtatt ttagaacag 19

<210> 151

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 151

gttgtcgccg cccccaaatg gtacct 26

<210> 152

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 152

atacagatat gtgcagtcct ag 22

<210> 153

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 153

gccacccccct gaaaaggca 19

<210> 154

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 154

ctatgcaaaa ttaagt 16

<210> 155

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 155

tgccctctaca caaaatcctg 20

<210> 156

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 156

ctctacacaa aatcc 15

<210> 157

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 157

acaaaatcct gtgccaaagta 20

<210> 158

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 158

caaaatcctg tgccaagtac 20

<210> 159

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 159

aatcctgtgc caagtacata tg 22

<210> 160

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 160

gtacatatga ccctactaag 20

<210> 161

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 161

cactattact ttaactgcag agg 23

<210> 162

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 162

tagtagtata ttagaaaat 19

<210> 163

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 163

tgtccctcca ccacctacta caagtt 26

<210> 164

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 164

atatcggtttt gtgcaatcag tt 22

<210> 165

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 165

ggatactaca cctccagaa 19

<210> 166

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 166

cactgccact gctgcggttt 20

<210> 167

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 167

tgccactgct gcggt 15

<210> 168

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 168

cactgctgcg gtttccccaa 20

<210> 169

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 169

ccactgctgc ggtttcccca 20

<210> 170

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 170

ctgcggtttc cccaacattt ac 22

<210> 171

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 171

caacatttac tccaagtaac 20

<210> 172

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 172

taaaattact ttaactacag agg 23

<210> 173

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 173

tcctaccatt cttgaacag 19

<210> 174

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 174

attaacatta cctccgtctg ctagtt 26

<210> 175

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 175

atataggttt gttagaaatg ca 22

<210> 176

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 176

ggacaccctt ccacaggct 19

<210> 177

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 177

tttggccaaa tataaa 16

<210> 178

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 178

tgagg ttaaa aagga 15

<210> 179

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 179

tgaggttaaa aaggaaagca 20

<210> 180

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 180

gaggttaaaa aggaaagcac 20

<210> 181



<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 181

ttaaaaagga aagcacatat 20

<210> 182

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 182

aaaggaaagc acatataaaa at 22

<210> 183

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 183

gcacatatataa aaatgaaaat 20

<210> 184

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 184

caaaattaca ttaacagctg atg 23

<210> 185

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 185

tgccactatt ttagaggac 19

<210> 186

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 186

ccttacccca ccaccgtctg catctt 26

<210> 187

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 187

atacagattt gtcacttcta ct 22

<210> 188

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 188

aaacacacca cctaaagga 19

<210> 189

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 189

tttaaaggac tatatg 16

<210> 190

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 190

tccgcaacca cacagtctat 20

<210> 191

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 191

ccgcaaccac acagt 15

<210> 192

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 192

ccgcaaccac acagtctatg 20

<210> 193

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 193

cacagtctat gtctacatat. aa 22

<210> 194

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 194

ctacatatataa ttcaaagcaa 20

<210> 195

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 195

taaaatatcc ctgtctgctg agg 23

<210> 196

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 196

ttctacctta ctggaagac 19

<210> 197

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 197

tttgtcgcct cctgttgcca ctagct 26

<210> 198

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 198

atacagatat gtgaaaagtg ca 22

<210> 199

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 199

ggatcagccc cctcctgaa 19

<210> 200

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 200

tacagcatcc acgca 15

<210> 201

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 201

cagcatccac gcaggatagc 20

<210> 202

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 202

acgcaggata gctttaataa 20

<210> 203

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 203

cacgcaggat agctttaata 20

<210> 204

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 204

atagctttaa taattctgac 20

<210> 205

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 205

taccataacc cttacagcag atg 23

<210> 206

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 206

tcccactatt ctagaggac 19

<210> 207

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 207

tataaccccc ccagctacaa gtagtt 26

<210> 208

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 208

atataggttt gtacagtcac ag 22

<210> 209

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 209

gaataatgcc cctgcaaagg aa 22

<210> 210

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 210

tttgttactg ttgtagatac tac 23

<210> 211

<211> 20

<212> DNA

<213> Human Papilloma Virus



<400> 211

atgacaatat gtgctgctac 20

<210> 212

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 212

gacaatatgt gctgctacaa 20

<210> 213

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 213

tgctacaact cagtctccat 20

<210> 214

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 214

ctacaactca gtctccatct 20

<210> 215

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 215

acaactcagt ctccatctac 20

<210> 216

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 216

atggttgagga gtttgactta 20

<210> 217

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 217

tggttgaggag tttgacttac 20

<210> 218

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 218

tgaggagttt gacttacagt 20

<210> 219

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 219

ctgctacaga acagt 15

<210> 220

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 220

gctacagaac agttaagtaa 20

<210> 221

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 221

cagaacagtt aagtaaatat 20

<210> 222

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 222

gaacagttaa gtaaatatga tgc 23

<210> 223

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 223

gtaaatatga tgcacgaaaa 20

<210> 224

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 224

caaaattact ttgtctgcag agg 23

<210> 225

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 225

tgctaaccta ctggaggac 19

<210> 226

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 226

gttatccccg ccagtggcca ccagcc 26

<210> 227

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 227

atatagatat gttagaagca ca 22

<210> 228

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 228

ggaacagcca ccaacagaa 19

<210> 229

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 229

atgcactgaa gtaactaagg 20

<210> 230

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 230

cactgaagta actaaggaag 20

<210> 231

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 231

tgaagtaact aagga 15

<210> 232

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 232

gaagtaacta aggaaggtac 20

<210> 233

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 233

ctaaggaagg tacatataaa aa 22

<210> 234

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 234

ataaaaaatga taattttaag 20

<210> 235

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 235

caaaattaca ctaactgcag aga 23

<210> 236

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 236

ttccaatatt ttggaggac 19

<210> 237

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 237

tttaacacct cctccgtctg ccagtt 26

<210> 238

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 238

atatagattt gttacctccc ag 22

<210> 239

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 239

aacagcaccctaaagaa 19

<210> 240

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 240

ttctactact tcttc 15

<210> 241

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 241

actacttctt ctattcctaa 20



<210> 242

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 242

acttcttcta ttcctaattgt 20

<210> 243

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 243

tcttctattc ctaattgtata cac 23

<210> 244

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 244

atgtatacac acctaccagt 20

<210> 245

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 245

taaaataaca ttaactacag agg 23

<210> 246

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 246

taccactatt ttggaggat 19

<210> 247

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 247

tgttacacca cctcctactg ctagtt 26

<210> 248

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 248

ataccggtttt gttcaatctg ct 22

<210> 249

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 249

ggacaccgca ccgccagtt 19

<210> 250

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 250

ttatgacaaa ctaaag 16

<210> 251

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 251

ctgctacatc ccccc 15

<210> 252

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 252

acatcccccc ctgtatctga 20

<210> 253

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 253

catccccccc tgtatctgaa 20

<210> 254

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 254

cccctgtatc tgaatataaa gc 22

<210> 255

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 255

ctgaatataa agccacaagc 20

<210> 256

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 256

taaaatacat ttaaccctg aaa 23

<210> 257

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 257

taaggccttg ttggatgac 19

<210> 258

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 258

tgtggtacca ccacctcta ccagtt 26

<210> 259

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 259

atataggttt ttgcagtcca ga 22

<210> 260

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 260

gggtgctgct gccccgccgc cc 22

<210> 261

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 261

ctatgccaaag ttatcc 16

<210> 262

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 262

ccgcctccac tgctg 15

<210> 263

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 263

gcctccactg ctgcagcaga 20

<210> 264

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 264

ctgctgcagc agaatacacg 20

<210> 265

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 265

gcagaataca cggctaccaa 20

<210> 266

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 266

cagaatacac ggctaccaac 20

<210> 267

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 267

caaaatacag ttaacccccg aaa 23

<210> 268

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 268

caaggacctt ttggatgac 19

<210> 269

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 269

ggttttacct ccccttcca ctagtt 26

<210> 270

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 270

atatcactat ttcgagtctc gg 22

<210> 271

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 271

ggggctgcct acccgctccc 19

<210> 272

<211> 16

<212> DNA



<213> Human Papilloma Virus

<400> 272

g t a t g c g c a a   a t g a c a            1 6

<210> 273

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 273

c a g c t a a a a g   c a c a t            1 5

<210> 274

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 274

c a g c t a a a a g   c a c a t t a a c t            2 0

<210> 275

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 275

c t a a a a g c a c   a t t a a c t a a a            2 0

<210> 276

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 276

ttaactaaat atgatgcccg 20

<210> 277

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 277

ctaaatatga tgcccgtgaa 20

<210> 278

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 278

taaaataacc ttaactgcag aag 23

<210> 279

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 279

taatacttta ttagacgat 19

<210> 280

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 280

cttatcccca ccagttgcaa ctagct 26

<210> 281

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 281

atataggtat attaaaagca ca 22

<210> 282

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 282

ggaacagccc cctgcagaa 19

<210> 283

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 283

cctggctaaa tataag 16

<210> 284

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 284

ctgaggaaaa atcag 15

<210> 285

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 285

gaggaaaaat cagaggctac 20

<210> 286

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 286

atcagaggct acatacaaaa atg 23

<210> 287

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 287

aggaaaaatc agaggctaca 20

<210> 288

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 288

ctacatacaa aaatgaaaac 20

<210> 289

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 289

caaaatatcc cttactgcaa atg 23

<210> 290

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 290

tccagatata ttagaggac 19

<210> 291

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 291

ccttacacca cctccttcag gtaatt 26

<210> 292

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 292

atatagattt gttacctcgc ag 22

<210> 293

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 293

aacatcccct ccaacagca 19

<210> 294

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 294

tcttaaaaag tacagt 16

<210> 295

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 295

ctactactga atcag 15

<210> 296

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 296

tgaatcagct gtaccaaata 20

<210> 297

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 297

gaatcagctg taccaaatat 20

<210> 298

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 298

cagctgtacc aaatatattat ga 22

<210> 299

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 299

atatttatga tcctaataaa 20

<210> 300

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 300

tcctgctatt ttggatgat 19

<210> 301

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 301

tactataaca ttgtccactg atg 23

<210> 302

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 302



tggtgcccct ccaccatctg ctagtc 26

<210> 303

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 303

ataccgctat ctgcaatcag ca 22

<210> 304

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 304

agacgcccct gcacctact 19

<210> 305

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 305

atatgatggc ttaaac 16

<210> 306

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 306

tattagtact gtatctgcac 20

<210> 307

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 307

ctgtatctgc acaat 15

<210> 308

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 308

ctgtatctgc acaatctgca 20

<210> 309

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 309

tgcacaatct gcatctgcca 20

<210> 310

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 310

caatctgcat ctgccacttt ta 22

<210> 311

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 311

ccacttttaa accatcagat 20

<210> 312

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 312

taaaattact cttaccactg atg 23

<210> 313

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 313

ttctactatt ttggaaaat 19

<210> 314

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 314

ccttaccttg cctcctactg ctagtt 26

<210> 315

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 315

atataggttt attaaaaatt ca 22

<210> 316

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 316

cgatgcccct gcacagccc 19

<210> 317

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 317

tgtctgcctg caccgaaacg 20

<210> 318  
<211> 15  
<212> DNA  
<213> Human Papilloma Virus

<400> 318

ctgcaccgaa acggc 15

<210> 319  
<211> 20  
<212> DNA  
<213> Human Papilloma Virus

<400> 319

gaaacggcca tacctgctgt 20

<210> 320  
<211> 20  
<212> DNA  
<213> Human Papilloma Virus

<400> 320

cgaaacggcc atacctgctg 20

<210> 321  
<211> 22  
<212> DNA  
<213> Human Papilloma Virus

<400> 321

cggccatacc tgctgtatat ag 22

<210> 322

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 322

ctgtatatag ccctacaaag 20

<210> 323

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 323

tactatcaca ttaactgctg acg 23

<210> 324

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 324

tcctgcaatt ttggacaat 19

<210> 325

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 325

agttaccctt ccaccatctg caagct 26

<210> 326

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 326

gtatagggtat ttacaatcag ca 22

<210> 327

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 327

ggatgctcct acacctgaa 19

<210> 328

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 328

ctatgacgat ttaaaa 16

<210> 329

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 329

atctgttggt ttaatgagct 20

<210> 330

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 330

tttgtgacag ttgtagatac 20

<210> 331

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 331

ctgccacagc gtcct 15

<210> 332

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 332

acagcgtcct ctgtatcaga 20

<210> 333



<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 333

ccacagcgtc ctctgtatca 20

<210> 334

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 334

agcgtcctct gtatcagaat at 22

<210> 335

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 335

cagaatatac agcttctaata 20

<210> 336

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 336

taaaattcac ttaactcctg aaa 23

<210> 337

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 337

taaggcctta ttggatgac 19

<210> 338

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 338

tgtggtgcct cctccttcta ccagtt 26

<210> 339

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 339

ctataggttt ttgcagtctc gt 22

<210> 340

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 340

gggggctgcc acccctcctc ct 22

<210> 341

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 341

atatgctaac ttatcc 16

<210> 342

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 342

cctacctcac aatcg 15

<210> 343

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 343

ctcacaatcg ccttctgcta 20

<210> 344

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 344

acctcacaat cgccttctgc 20

<210> 345

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 345

caatcgcctt ctgctacata ta 22

<210> 346

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 346

acaatcgcct tctgctacat at 22

<210> 347

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 347

ctacatatataa tagttcagac 20

<210> 348

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 348

tagtattaag ttaactgctg agg 23

<210> 349

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 349

tcctacagtt ttagaagag 19

<210> 350

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 350

gctaacgcct ccccccaatg gtactt 26

<210> 351

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 351

ctacagatat gtgcagtccc ag 22

<210> 352

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 352

acctacgcct gataaagca 19

<210> 353

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 353

ctatgcaaat ttaagt 16

<210> 354

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 354

tgctgttact ccatc 15

<210> 355

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 355

tgctgttact ccatctgttg 20

<210> 356

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 356

actccatctg ttgcacaaac 20

<210> 357

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 357

aaacatttac tccagcaaac 20

<210> 358

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 358

taaaatcact ttaactactg aaa 23

<210> 359

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 359

ttctacaatt ttagaacag 19

<210> 360

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 360

attaacattg cccccctccg ctagtt 26

<210> 361

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 361

ctatcgattt gtaaaaaatg ca 22

<210> 362

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 362

ggacagtcct ccacaggct 19

<210> 363

<211> 20

<212> DNA

<213> Human Papilloma Virus



<400> 363

tctgtgctac caaaactggt 20

<210> 364

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 364

ctaccaaaac tggtg 15

<210> 365

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 365

acaaaaactg ttgagtctac 20

<210> 366

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 366

aactgttgag tctacatata aa 22

<210> 367

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 367

gttgagtcta catataaagc 20

<210> 368

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 368

ctacatataa agcctctagt 20

<210> 369

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 369

tggtattaat ttaacagctg aaa 23

<210> 370

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 370

tgctacatta ctggaggac 19

<210> 371

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 371

gttctttacca cctcctactg 20

<210> 372

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 372

ctaccgcttt ttacagtctc ag 22

<210> 373

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 373

aaacagtcct cctcctgcag aa 22

<210> 374

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 374

ctatgcagat cttaca 16

<210> 375

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 375

cagctacatc tgctg 15

<210> 376

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 376

gctacatctg ctgctgcaga 20

<210> 377

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 377

acatctgctg ctgcagaata ca 22

<210> 378

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 378

tgctgcagaa tacaaggcct 20

<210> 379

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 379

gctgcagaat acaaggcctc 20

<210> 380

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 380

cagaatacaa ggcctctaac 20

<210> 381

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 381

taaaatacag ttaacaccag aaa 23

<210> 382

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 382

caaggcactg ttggatgat 19

<210> 383

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 383

tgtgttgcca cctccttcca ccagtt 26

<210> 384

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 384

atatacgcttt ttacagtctc gg 22

<210> 385

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 385

gggtgctgct gcccctgcgc cc 22

<210> 386

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 386

ttatgccgac atgtca 16

<210> 387

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 387

atctactgca actactaatc 20

<210> 388

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 388

ctgcaactac taatc 15

<210> 389

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 389

ctgcaactac taatccagtt 20

<210> 390

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 390

actactaatc cagttccatc ta 22

<210> 391

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 391

ctaattccagt tccatctata 20

<210> 392

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 392

ctatatatga accttctaaa 20

<210> 393

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 393

taaaattaca cttactactg atg 23



<210> 394

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 394

tcctactatt ttagatagt 19

<210> 395

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 395

tgttagtcct ccccatctg ctagct 26

<210> 396

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 396

atataggttt ttacagtcac ct 22

<210> 397

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 397

ggatgtggtt gttccacaa 19

<210> 398

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 398

ctgctgttac tcaatctggt 20

<210> 399

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 399

tgctgttact caatc 15

<210> 400

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 400

gttactcaat ctgttgacac 20

<210> 401

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 401

tgcacaaaca tttactccag 20

<210> 402

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 402

ttactcaatc tgttgcacaa ac 22

<210> 403

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 403

aaacattttac tccagcaaac 20

<210> 404

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 404

taaaatcact ttaactactg aaa 23

<210> 405

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 405

ttctacaatt ttagaacag 19

<210> 406

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 406

attaaccttg ccccccctcag ctagtt 26

<210> 407

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 407

ctatcgattt gtaaaaaatg ca 22

<210> 408

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 408

ggacagtcct ccacaggct 19

<210> 409

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 409

tgctgctaca caggc 15

<210> 410

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 410

gctgctacac aggctaatga 20

<210> 411

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 411

tgctacacag gctaatgaat 20

<210> 412

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 412

ctacacaggc taatgaatac ac 22

<210> 413

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 413

atgaatacac agcctctaac 20

<210> 414

<211> 23

<212> DNA

<213> Human Papilloma Virus

<400> 414

caaaatacat cttaccctg aaa 23

<210> 415

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 415

tgaacattta ttggatgag 19

<210> 416

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 416

cgtgttacca cctccttcca ccagcc 26

<210> 417

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 417

ctatcgctat ctgcagtccc gt 22

<210> 418

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 418

gggtccttcc gcccctgccc ct 22

<210> 419

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 419

ttatgatggc cttgta 16

<210> 420

<211> 15

<212> DNA

<213> Human Papilloma Virus

<400> 420

tgctaccaac accga 15

<210> 421

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 421

ctaccaacac cgaatcagaa 20

<210> 422

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 422

ccaacaccga atcagaatat aa 22

<210> 423

<211> 20

<212> DNA

<213> Human Papilloma Virus

<400> 423

cagaatataa acctaccaat 20

<210> 424

<211> 23

<212> DNA



<213> Human Papilloma Virus

<400> 424

taagggtccgt ctgactccag agg 23

<210> 425

<211> 19

<212> DNA

<213> Human Papilloma Virus

<400> 425

tgactcctta ttagatgag 19

<210> 426

<211> 26

<212> DNA

<213> Human Papilloma Virus

<400> 426

tgttgtgccc cctccctcca caagtt 26

<210> 427

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 427

ctataggtac ttgcagtctc gc 22

<210> 428

<211> 22

<212> DNA

<213> Human Papilloma Virus

<400> 428

ggggggccgcc gccgccaagc ct 22

<210> 429

<211> 16

<212> DNA

<213> Human Papilloma Virus

<400> 429

ttatgctggc atgtcc 16

<210> 430

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 6 (6743-7151/409 bp)

<400> 430

tatttggttg	ggtaatcaac	tgtttggttac	tgtggtagat	accacacgca	gtaccaacat	60
gacattatgt	gcatccgtaa	ctacatcttc	cacatacacc	aattctgatt	ataaagagta	120
catgcgtcat	gtggaagagt	atgatttaca	atttattttt	caattatgta	gcattacatt	180
gtctgctgaa	gtaatggcct	atattcacac	aatgaatccc	tctgtttttg	aagactggaa	240
ctttgggtta	tcgcctcccc	caaatgggtac	attagaagat	acctataggt	atgtgcagtc	300
acaggccatt	acctgtcaaa	agcccactcc	tgaaaaggaa	aagccagatc	cctataagaa	360
ccttagtttt	tgggaggtta	atttaaaaga	aaagttttct	agtgaattg		409

<210> 431

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 11 (6727-7135/409 bp)

<400> 431

```
tatttgctgg ggaaaccact tgtttggttac tgtggtagat accacacgca gtacaaatat    60
gacactatgt gcatctgtgt ctaaatctgc tacatacact aattcagatt ataaggaata    120
catgcgccat gtggaggagt ttgatttaca gtttattttt caattgtgta gcattacatt    180
atctgcagaa gtcatggcct atatacacac aatgaatcct tctgttttgg aggactggaa    240
ctttggttta tcgcctccac caaatggtac actggaggat acttatagat atgtacagtc    300
acaggccatt acctgtcaga aacccacacc tgaaaaagaa aaacaggatc cctataagga    360
tatgagtttt tgggagggtta acttaaaaga aaagttttca agtgaatta                409
```

<210> 432

<211> 412

<212> DNA

<213> Human Papilloma Virus subtype 16 (6602-7013/412 bp)

<400> 432

```
catttgttgg ggtaaccaac tatttggttac tgttgttgat actacacgca gtacaaatat    60
gtcattatgt gctgccatat ctacttcaga aactacatat aaaaatacta actttaagga    120
gtacctacga catggggagg aatatgattt acagtttatt tttcaactgt gcaaaataac    180
cttaactgca gacgttatga catacataca ttctatgaat tccactatth tggaggactg    240
gaattttggt ctacaacctc cccaggagg cactacagaa gatacttata ggtttgtaac    300
ccaggcaatt gcttgtcaaa aacatacacc tccagcacct aaagaagatg atccccctaa    360
aaaatacact ttttgggaag taaatttaaa ggaaaagttt tctgcagacc ta                412
```

<210> 433

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 18 (6587-6992/415 bp)

<400> 433

```
tgtttgctgg cataatcaat tatttggttac tgtggtagat accactccca gtaccaatth    60
aacaatatgt gcttctacac agtctcctgt acctgggcaa tatgatgcta ccaaatthaa    120
```

gcagtatagc agacatgttg aggaatatga tttgcagttt atttttcagt tgtgtactat	180
tacttttaact gcagatgtta tgtcctatat tcatagtatg aatagcagta ttttagagga	240
ttggaacttt ggtgttcccc ccccccaac tactagtttg gtggatacat atcgttttgt	300
acaatctggt gctattacct gtcaaaagga tgctgcaccg gctgaaaata aggatcccta	360
tgataagtta aagttttgga atgtggattt aaaggaaaag ttttcttttag actta	415

<210> 434

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 26 (6553-6967/415 bp)

<400> 434

tatctgttgg ggcaatcaat tgtttgttac ctgtgttgat accaccgca gtactaacct	60
taccattagt acattatctg cagcatctgc atccactcca tttaaaccat ctgattataa	120
acaatttata agacatggcg aagaatatga attacaattt atatttcagt tgtgtaaaat	180
aacacttaca acagatgtta tggcttacat acatttaatg aatgcctcca tattggagga	240
ttggaatttt ggactaacct tacctccac tgctagtttg gaagatgcct ataggtttat	300
taaaaactct gctactacct gtcagcgtaa cgccctcct gtgccaaagg aagatccttt	360
tcaaaaattt aaattttggg atgtagattt aaaagaaaaa ttttctattg atttg	415

<210> 435

<211> 412

<212> DNA

<213> Human Papilloma Virus subtype 31 (6520-6931/412 bp)

<400> 435

tatttggttg ggcaatcagt tatttggttac tgtggtagat accacacgta gtaccaatat	60
gtctgtttgt gctgcaattg caaacagtga tactacattt aaaagtagta attttaaaga	120
gtatttaaga catggtgagg aatttgattt acaatttata tttcagttat gcaaaataac	180
attatctgca gacataatga catatattca cagtatgaat cctgctattt tggaagattg	240
gaattttgga ttgaccacac ctccctcagg ttctttggag gataacctata ggtttgtcac	300
ctcacaggcc attacatgtc aaaaaactgc cccccaaaag cccaaggaag atccatttaa	360
agattatgta ttttgggagg ttaatttaaa agaaaagttt tctgcagatt ta	412

<210> 436

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 32 (6837-7245/409 bp)

<400> 436

```
tatatgttgg ggtaatcaag tgtttctaac tgttgtggat actaccgta gtactaacat    60
gactgtgtgt gctactgtaa caactgaaga cacatacaag tctactaact ttaaggaata    120
tctacgccat gcagaggaat atgatataca gtttatatth caattgtgca aaattacatt    180
atctgtagag gttatgtcat atatccacac catgaatcct gacatactag acgattggaa    240
tggtgggtgta gctccaccgc cctctggtac tttagaagat agttatagat ttgtgcagtc    300
tcaggccata cgatgtcaag ctaaggtaac agcacctgaa aaaaaggatc ctttttctga    360
ctattcattt tgggaagtaa atttatctga aaagttttct agtgattta                409
```

<210> 437

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 33 (6559-6967/409 bp)

<400> 437

```
tatttggttg ggcaatcagg tatttggttac tgtggtagat accactcgca gtactaatat    60
gactttatgc acacaagtaa ctagtgacag tacatatata aatgaaaatt ttaaagaata    120
tataagacat gttgaagaat atgatctaca gtttggtttt caactatgca aagttacctt    180
aactgcagaa gttatgacat atattcatgc tatgaatcca gatatttttag aagattggca    240
atgtggttta acacctctc catctgctag tttacaggat acctataggt ttgttacctc    300
tcaggctatt acgtgtcaaa aaacagtacc tccaaaggaa aaggaagacc ccttaggtaa    360
atatacattt tgggaagtgg atttaaagga aaaattttca gcagattta                409
```

<210> 438

<211> 412

<212> DNA

<213> Human Papilloma Virus subtype 35 (6542-6953/412 bp)

<400> 438

```
tatttgttgg agtaaccaat tgtttggttac tgtagttgat acaaccgta gtacaaatat    60
gtctgtgtgt tctgctgtgt cttctagtga cagtacatat aaaaatgaca attttaagga    120
atattttaagg catggtgaag aatatgattt acagtttatt tttcagttat gtaaaataac    180
actaacagca gatggttatga catatatattca tagtatgaac cgtccattt tagaggattg    240
gaattttggc cttacaccac cgccttctgg taccttagag gacacatatc gctatgtaac    300
atcacaggct gtaacttgtc aaaaaccag tgcacaaaaa cctaaagatg atccattaaa    360
aaattatact ttttgggagg ttgatttaaa ggaaaagttt tctgcagact ta            412
```

<210> 439

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 37 (6711-7125/415 bp)

<400> 439

```
cattttatgg ggtaatcaaa tgtttatcac agttgctgat aatacacgga acacaaactt    60
ttctattagt gtgtctactg acaatggcga agttacagaa tataattctc aaacactcag    120
agaataccta agacatgttg aagaatacca gctttcaatt attttacaac tttgtaaagt    180
tcctttaaag gctgagggtt taactcagat aaatgcaatg aattctggta tattggaaga    240
gtggcaatta ggatttgtag ctactccaga taattcagta catgacctt ataggtacat    300
taattcaaag gctaccaagt gtcctgatgc agttgttgaa aaagaaaagg aagatccctt    360
tgcaaaatat acattttgga atgtagattt aactgaaaaa ttatcattgg attta            415
```

<210> 440

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 39 (6605-7017/415 bp)

<400> 440

```
tatatgttgg cataatcaat tatttcttac tgttgtggac actaccgta gtaccaactt    60
tacattatct acctctatag agtcttccat accttctaca tatgatcctt ctaagtttaa    120
ggaatatacc aggcacgtgg aggagtatga ttacaattt atatttcaac tgtgtactgt    180
cacattaaca actgatgtta tgccttatat tcacactatg aattcctcta tattggacaa    240
```

ttggaatttt	gctgtagctc	ctccaccatc	tgccagtttg	gtagacactt	acagatacct	300
acagtctgca	gccattacat	gtcaaaagga	tgctccagca	cctgaaaaga	aagatccata	360
tgacggtcta	aagttttgga	atggtgactt	aagggaag	tttagtttg	aactt	415

<210> 441

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 42 (6802-7210/409 bp)

<400> 441

tatatgttgg	ggaaatcagc	tatttttaac	tgtggtgat	actaccgta	gtactaacat	60
gacttttgt	gccactgca	catctggtga	tacatatata	gctgctaatt	ttaaggaata	120
tttaagacat	gctgaagaat	atgatgtgca	atttatattt	caattgtgta	aaataacatt	180
aactgttgaa	gttatgtcat	atatacaca	tatgaatcct	aacatattag	aggagtggaa	240
tgttggtgtt	gcaccaccac	cttcaggaac	tttagaagat	agttataggt	atgtacaatc	300
agaagctatt	cgctgtcagg	ctaaggtaac	aacgccagaa	aaaaaggatc	cttattcaga	360
cttttggttt	tgggaggtaa	atttatctga	aaagttttct	actgattta		409

<210> 442

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 43 (21-435/415 bp)

<400> 442

catttgtttt	gggaatcagt	tgtttgttac	agtggtagat	accactcgta	gtacaaactt	60
gacgttatgt	gcctctactg	accctactgt	gccagtaga	tatgacaatg	caaagtttaa	120
ggaatacttg	cggcatgtgg	aagaatatga	tctgcagttt	atatttcaat	tatgcataat	180
aacgctaaac	ccagagggtta	tgacatatat	tcatactatg	gatcccat	tattagagga	240
ctggaatttt	gggtgtgtccc	cacctgcctc	tgcttctttg	gaagatactt	atcgcttttt	300
gtctaacaag	gccattgcat	gtcaaaaaa	tgctcccca	aagggaacggg	aggatcccta	360
taaaaagtat	acattttggg	atataaatct	tacagaaaag	ttttctgcac	aactt	415

<210> 443

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 44 (6647-7061/415 bp)

<400> 443

```
tattttgttgg ggaaatcagt tattttgttac tgttgtagat actaccgta gtacaaacat    60
gacaatatgt gctgccacta cacagtcgcc tccgtctaca tatactagtg aacaatataa    120
gcaatacatg cgacatgttg aggagtttga cttacaatth atgtttcaat tatgtagtat    180
taccttaacg gcgagggtta tggcctatct tcatactatg aatgctggta ttttagaaca    240
gtggaaacttt gggttgtcgc cgccccaaa tggtagctta gaggacaaat acagatatgt    300
gcagtcccag gccattacat gtcaaaagcc accccctgaa aaggcaaagc aggaccctta    360
tgcaaaatta agtttttggg aggtggatct tagagaaaag ttttctagtg agttg      415
```

<210> 444

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 45 (6582-6996/415 bp)

<400> 444

```
tattttgttgg cataatcagt tgtttgttac tgtagtggac actaccgca gtactaatth    60
aacattatgt gcctctacac aaaatcctgt gccaaagtaca tatgacccta ctaagtttaa    120
gcagtatagt agacatgttg aggaatatga tttacagttt atttttcagt tgtgcactat    180
tactttaact gcagagggtta tgtcatatat ccatagtatg aatagtagta tattagaaaa    240
ttggaatttt ggtgtccctc caccacctac tacaagtttg gtggatacat atcgttttgt    300
gcaatcagtt gctgttacct gtcaaaagga tactacacct ccagaaaagc aggatccata    360
tgataaatta aagttttgga ctgttgacct aaaggaaaaa ttttctccg atttg      415
```

<210> 445

<211> 412

<212> DNA

<213> Human Papilloma Virus subtype 51 (6486-6897/412 bp)

<400> 445



catttgctgg aacaatcagc tttttattac ctgtgttgat actaccagaa gtacaaattt	60
aactattagc actgccactg ctgcggtttc cccaacattt actccaagta actttaagca	120
atatattagg catggggaag agtatgaatt gcaatttatt tttcaattat gtaaaattac	180
tttaactaca gaggtaatgg cttatttaca cacaatggat cctaccattc ttgaacagtg	240
gaattttgga ttaacattac ctccgtctgc tagtttgag gatgcatata ggtttgtag	300
aatgcagct actagctgtc aaaaggacac ccctccacag gctaagccag atcctttggc	360
caaatataaa ttttgggatg ttgatttaaa ggaacgattt tctttagatt ta	412

<210> 446

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 52 (6623-7031/409 bp)

<400> 446

catatgttgg ggcaatcagt tgtttgtcac agttgtggat accactcgta gcactaacat	60
gactttatgt gctgagggtta aaaaggaaaag cacatataaa aatgaaaatt ttaaggaata	120
ccttcgtcat ggcgaggaat ttgatttaca atttattttt caattgtgca aaattacatt	180
aacagctgat gttatgacat acattcataa gatggatgcc actatttttag aggactggca	240
atttggcctt accccaccac cgtctgcac tttggaggac acatacagat ttgtcacttc	300
tactgctata acttgtcaaa aaaacacacc acctaaagga aaggaagatc ctttaaagga	360
ctatatgttt tgggaggttg atttaaaaga aaagttttct gcagattta	409

<210> 447

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 53 (6614-7022/409 bp)

<400> 447

catctgttgg aacaatcagt tatTTgtaac tgTTgtggat accaccagga atacaaacat	60
gactctttcc gcaaccacac agtctatgtc tacatataat tcaaagcaaa ttaaacagta	120
tgtagacat gcagaggaat atgaattaca atttgtgttt caactatgta aaatatccct	180
gtctgctgag gttatggcct atttacatac tatgaattct accttactgg aagactggaa	240
tataggtttg tcgcctcctg ttgccactag ctagaggac aaatacagat atgtgaaaag	300
tgagctata acctgtcaaa aggatcagcc ccctcctgaa aagcaggacc cactatctaa	360

atataaaattt tgggaggtca atttgcaaaa cagtttttct gctgatttg

409

<210> 448

<211> 412

<212> DNA

<213> Human Papilloma Virus subtype 54 (6561-6972/412 bp)

<400> 448

tatttggttg	ggcaatcagg	tgtttttaac	agttgtagat	accacccgta	gtactaacct	60
aacatttgt	gctacagcat	ccacgcagga	tagctttaat	aattctgact	ttagggagta	120
tattagacat	gtggaggaat	atgatttaca	gtttatat	cagttatgta	ccataaccct	180
tacagcagat	gttatggcct	atattcatgg	aatgaatccc	actattctag	aggactggaa	240
ctttggtata	acccccccag	ctacaagtag	tttgaggagac	acatataggt	ttgtacagtc	300
acaggccatt	gcatgtcaaa	agaataatgc	ccctgcaaag	gaaaaggagg	atccttacag	360
taaattta	ttttggactg	ttgaccttaa	ggaacgattt	tcattctgacc	tt	412

<210> 449

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 55 (6647-7061/415 bp)

<400> 449

tatttggttg	gggaatcagt	tatttggttac	tgttgtagat	actacacgta	gtacaaacat	60
gacaatatgt	gctgctacaa	ctcagtctcc	atctacaaca	tataatagta	cagaatataa	120
acaatacatg	cgacatgttg	aggagtttga	cttacagttt	atgtttcaat	tatgtagtat	180
taccttaact	gctgaggtaa	tggcctat	acataccatg	aatcctggta	ttttggaaca	240
gtggaacttt	gggttgctgc	cacccccaaa	tggtacctta	gaagacaaat	acagatatgt	300
gcagtcacag	gccattacat	gtcaaaagcc	tccccctgaa	aaggcaaagc	aggacccccta	360
tgcaaaatta	agtttttggg	aggtagatct	cagagaaaag	ttttctagt	agtta	415

<210> 450

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 56 (6559-6967/409 bp).

<400> 450

```
catttgctgg ggtaatcaat tatttggttac tgtagtagat actactagaa gtactaacat    60
gactattagt actgctacag aacagttaag taaatatgat gcacgaaaaa ttaatcagta    120
ccttagacat gtggaggaat atgaattaca atttggtttt caattatgca aaattacttt    180
gtctgcagag gttatggcat atttacataa tatgaatgct aacctactgg aggactggaa    240
tattgggtta tccccgccag tggccaccag cctagaagat aaatatagat atgttagaag    300
cacagctata acatgtcaac gggaacagcc accaacagaa aaacaggacc cattagctaa    360
atataaattt tgggatgtta acttacagga cagtttttct acagacctg                419
```

<210> 451

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 58 (6608-7016/409 bp)

<400> 451

```
catttgctgg ggcaatcagt tatttggttac cgtggttgat accactcgta gcactaatat    60
gacattatgc actgaagtaa ctaaggaagg tacatatataa aatgataatt ttaaggaata    120
tgtacgtcat gttgaagaat atgacttaca gtttggtttt cagctttgca aaattacact    180
aactgcagag ataatgacat atatacatat tatggattcc aatatttttg aggactggca    240
atttggttta acacctcctc cgtctgccag ttacaggac acatatagat ttgttacctc    300
ccaggctatt acttgccaaa aaacagcacc ccctaaagaa aaggaagatc cattaaataa    360
atatactttt tgggagggtta acttaaagga aaagttttct gcagatcta                409
```

<210> 452

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 59 (6571-6985/415 bp)

<400> 452

```
tatatgttgg cacaatcaat tgtttttaac agttgtagat actactcgca gcaccaatct    60
ttctgtgtgt gcttctacta cttcttctat tcctaagtga tacacaccta ccagttttta    120
```

agaatatgcc agacatgtgg aggaatttga tttgcagttt atatttcaac tgtgtaaaat	180
aacattaact acagaggtaa tgtcatacat tcataatatg aataccacta ttttggagga	240
ttggaatttt ggtgttacac cacctcctac tgctagttaa gttgacacat accgttttgt	300
tcaatctgct gctgtaactt gtcaaaagga caccgcaccg ccagttaaac aggaccctta	360
tgacaaaacta aagttttggc ctgtagatct taaggaaagg ttttctgcag atctt	415

<210> 453

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 61 (6732-7146/415 bp)

<400> 453

tatttgttgg tttaatgaat tgtttgtaac cgttgtggat accaccgca gtactaat	60
aaccatttgt actgctacat cccccctgt atctgaatat aaagccacaa gctttaggga	120
atatttgcgc catacagagg agtttgattt gcaatttatt tttcagttat gtaaaataca	180
tttaaccctt gaaattatgg cctacctaca taatatgaat aaggccttgt tggatgactg	240
gaactttggg gtggtaccac caccctctac cagtttagaa gacacatata ggtttttgca	300
gtccagagct attacatgtc agaagggtgc tgctgccccg ccgccaagg aggatcgcta	360
tgccaagtta tccttttgga ctggtgattt acgagacaag ttttccactg atttg	415

<210> 454

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 62 (21-429/409 bp)

<400> 454

tatttgttgg tttaatgaac tgtttgttac tgtggtggat actaccagaa gtactaat	60
tactatttgt accgcctcca ctgctgcagc agaatacacg gctaccaact ttagggaatt	120
tttgcgacac acggaggaat ttgatttgca atttatattt caattgtgca aaatacagtt	180
aacccccgaa attatggcct acctgcataa tatgaacaag gaccttttgg atgactggaa	240
ctttgggggt ttacctcccc cttccactag tttagatgag acatatcact atttcgagtc	300
tcgggctatt acatgtcaaa gggggctgcc taccgctccc aagggtggacc cgtatgcgca	360
aatgacattt tggactgtgg atcttaagga caagttgtct actgatttg	409

<210> 455

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 66 (6609-7017/409 bp)

<400> 455

```
catatgctgg ggtaatcagg tatttggttac tgttgtggat actaccagaa gcaccaacat    60
gactattaat gcagctaaaa gcacattaac taaatatgat gcccgtagaa tcaatcaata    120
ccttcgccat gtggaggaat atgaactaca gtttgtgttt caactttgta aaataacctt    180
aactgcagaa gttatggcat atttgcataa tatgaataat actttattag acgattggaa    240
tattggctta tccccaccag ttgcaactag cttagaggat aaatataggt atattaaaag    300
cacagctatt acatgtcaga gggaacagcc ccctgcagaa aagcaggatc ccctggctaa    360
atataagttt tgggaagtta atttacagga cagcttttct gcagacctg                409
```

<210> 456

<211> 409

<212> DNA

<213> Human Papilloma Virus subtype 67 (6584-6992/409 bp)

<400> 456

```
tatatgctgg ggtaatcaaa tatttggttac tgttgtagac actacacgta gtaccaacat    60
gactttatgt tctgaggaaa aatcagaggc tacatacaaa aatgaaaact ttaaggaata    120
ccttagacat gtggaagaat atgatttgca gtttatattt cagctgtgca aaatatccct    180
tactgcaaat gttatgcaat acatacacac catgaatcca gatataattag aggactggca    240
atttggcctt acaccacctc cttcaggtaa ttacaggac acatatagat ttgttacctc    300
gcaggctatt acctgtcaaa aaacatcccc tccaacagca aaggaagatc ctcttaaaaa    360
gtacagtttt tgggaaatca atttaaagga aaaattttct gcagattta                409
```

<210> 457

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 68 (2582-2996/415 bp)

<400> 457

```
tatttggttg cataatcaat tatttcttac tgttggtgat accactcgca gtaccaattt 60
tactttgtct actactactg aatcagctgt accaaatatt tatgacccta ataaatttaa 120
ggaatatatt aggcattgtg aggaatatga tttgcaattt atatttcagt tgtgtactat 180
aacattgtcc actgatgtaa tgtcctatat acatactatg aatcctgcta ttttggatga 240
ttggaatttt ggtgttgccc ctccaccatc tgctagtctt gtagatacat accgctatct 300
gcaatcagca gcaattacat gtcaaaaaga cgccctgca cctactaaa aggatccata 360
tgatggctta aacttttggg atgtaaatth aaaggaaaag tttagtcttg aactg 415
```

<210> 458

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 69 (6509-6923/415 bp)

<400> 458

```
catttggttg ggcaaccaat tgtttggttac ttgtgtagat actaccgca gtaccaacct 60
cactattagt actgtatctg cacaatctgc atctgccact tttaaaccat cagattataa 120
gcagtttata aggcattgtg aggaatatga attacagttt atatttcaat tgtgtaaaat 180
tactcttacc actgatgtaa tggcctatat ccatacaatg aattctacta ttttggaaaa 240
ttggaatttt ggccttacct tgccctctac tgctagtttg gaagatgcat ataggtttat 300
taaaaattca gctactacat gtcaacgcca tgccctgca cagcccaagg aggatccatt 360
tagtaaatta aaattttggg acgttgatct taaagaaaag ttttctattg attta 415
```

<210> 459

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 70 (6549-6963/415 bp)

<400> 459

```
catttggttg cataaccagt tgtttattac tgtggtggac actacacgta gtactaatth 60
tacattgtct gcctgcaccg aaacggccat acctgctgta tatagcccta caaagtttaa 120
ggaatatact aggcattgtg aggaatatga tttacaatth atatttcaat tgtgtactat 180
cacattaact gctgacgtta tggcctacat ccatactatg aatcctgcaa ttttggacaa 240
```

ttggaatata ggagttaccc ctccaccatc tgcaagcttg gtggacacgt ataggtat	300
acaatcagca gctatagcat gtcaaaagga tgctcctaca cctgaaaaaa aggatcccta	360
tgacgattta aaattttgga atgttgattt aaaggaaaag tttagtagag aacta	415

<210> 460

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 72 (6758-7172/415 bp)

<400> 460

catctgttgg tttaatgagc tttttgtgac agttgtagat actactcgca gtactaatgt	60
aactat	120
gtatcttcgc cacactgagg aatttgattt gcagtttata tttcaactgt gtaaaattca	180
cttaactcct gaaattatgg cctacttgca caatatgaat aaggccttat tggatgactg	240
gaattttggg gtgggtgctc ctccctctac cagtttgat gataacctata ggtttttgca	300
gtctcgtgcc attacctgtc aaaagggggc tgccaccct cctcctaaag aagatccata	360
tgctaactta tccttttgga ctgtggattt aaaggacaaa tttccactg acttg	415

<210> 461

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 74 (1613-2027/415 bp)

<400> 461

tatttgttgg ggtaatcaat tatttgttac agttgtggat accacacgca gtactaacat	60
gactgtgtgt gctcctacct cacaatcgcc ttctgttaca tataatagtt cagactacaa	120
acaatacatg cgacatgtgg aggaatttga tttgcaattt atttttcaat tatgtagtat	180
taagttaact gctgagggtta tggcctatat tcatactatg aatcctacag ttttagaaga	240
gtggaacttt gggctaacgc ctccccccaa tggacttita gaagacacct acagatatgt	300
gcagtcacag gctattacat gtcaaaaacc tacgctgat aaagcaaagc ccaatcccta	360
tgcaaat	415

<210> 462

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype 82 (6536-6950/415 bp)

<400> 462

```
catttgctgg aataatcagc tttttattac ttgtgttgac actactaaaa gtaccaattt    60
aaccattagc actgctgtta ctccatctgt tgcacaaaca tttactccag caaactttta    120
gcagtacatt aggcattggg aagaatatga attgcaattt atatttcaat tgtgtaaaat    180
cactttaact actgaaatta tggettacct gcacaccatg gattctacaa ttttagaaca    240
gtggaathtt ggattaacat tgccccctc cgctagtgtt gaggatgcct atcgatttgt    300
aaaaaatgca gcaacatcct gtcacaagga cagtcctcca caggctaaag aagacccttt    360
ggcaaatat aaattttgga atgtagacct taaggacgc ttttctttgg atttg      415
```

<210> 463

<211> 412

<212> DNA

<213> Human Papilloma Virus subtype CP8061 (21-432/412 bp)

<400> 463

```
catttgttgg ggcaatcagc tttttgtaac agttgtggac acatcacgta gtacaaatat    60
gtccatctgt gttacaaaa ctgttgagtc tacatataaa gcctctagtt tcatggaata    120
tttgagacat ggagaagaat ttgatttgca atttatattt caactatgtg ttattaattt    180
aacagctgaa attatggcct acttacatcg catggatgct acattactgg aggactggaa    240
tttttggttc ttaccacctc ctactgctag tcttggtgat acctaccgct ttttacagtc    300
tcaggccata acctgtcaga aaaacagtc tctcctgca gaaaaaaagg acccctatgc    360
agatcttaca ttttgggagg tggatttaaa ggagcggttt tcactagaat tg      412
```

<210> 464

<211> 412

<212> DNA

<213> Human Papilloma Virus subtype CP8304 (21-432/412 bp)

<400> 464



tattttgttg tttaatgaaa tgtttgttac agtgggtggat actaccagaa gcaccaatTT 60  
tactatttgc acagctacat ctgctgctgc agaatacaag gcctctaact ttaaggaatt 120  
tctgcgccat acagaggaat atgatttgca gtttattttc caattatgta aaatacagtt 180  
aacaccagaa attatggcct acttacataa tatgaacaag gcaactgttg atgattggaa 240  
ttttggtgtg ttgccacctc cttccaccag tttagatgac acatatcgct ttttacagtc 300  
tcggggccatt acctgtcaaa aggggtgctgc tgcccctgcg cccaaagagg acccttatgc 360  
cgacatgtca ttttggacag ttgaccttaa ggacaagttg tctactgatt tg 412

<210> 465

<211> 350

<212> DNA

<213> Human Papilloma Virus subtype L1AE5 (11-360/350 bp)

<400> 465

ggcacaacca attatttata actgtggtag acacaacacg tagtaccaat cttaccttat 60  
ctactgcaac tactaatcca gttccatcta tatatgaacc ttctaaatTT aaggaataca 120  
cacgccatgt agaggaatat gatttacaat ttatatTTca attgtgtaaa attacactta 180  
ctactgatgt tatgtcttat atacataaca tggatcctac tatttttagat agttggaatt 240  
ttggtgttag tcctcccca tctgctagct tagtagatac atataggTTt ttacagtcatt 300  
ctgccattac atgtcagaag gatgtggttg ttccacaaaa aaaggatcca 350

<210> 466

<211> 415

<212> DNA

<213> Human Papilloma Virus subtype MM4 (21-435/415 bp)

<400> 466

catttgctgg aataatcagc tttttattac ttgtgttgac actactagaa gtaccaatTT 60  
aaccattagc actgctgtta ctcaatctgt tgcacaaaca tttactccag caaactTTaa 120  
gcaatacatt aggcattggg aagaatatga attgcaatTT atatttcaat tgtgtaaaaat 180  
cactTTaact actgaaatta tggettacct gcacaccatg gattctacaa ttttagaaca 240  
gtggaatTTt ggattaacct tgccccctc agctagTTtg gaggatgcct atcgatttgt 300  
aaaaaatgca gcaacatcct gtcacaagga cagtcctcca caggctaaac aagaccTTt 360  
ggcaaaatat aaatTTtgga atgtagacct taaggaacgc ttttctTTtg atttg 415

<210> 467

<211> 412

<212> DNA

<213> Human Papilloma Virus subtype MM7 (21-432/412 bp)

<400> 467

```
catttggttg tttaatgagt tatttggttac agttgtagat actaccgcga gtaccaatat 60
tactattttca gctgctgcta cacaggctaa tgaatacaca gcctctaact ttaaggaata 120
cctccgccac accgaggaat atgacttaca gggttatattg caactttgca aaatacatct 180
tacccttgaa attatggcat acctacatag tatgaatgaa catttattgg atgagtggaa 240
ttttggcgtg ttaccacctc cttccaccag ccttgatgat acctatcgct atctgcagtc 300
ccgtgctatt acctgccaaa agggtccttc cgccctgcc cctaaaaagg atccttatga 360
tggccttgta ttttgggagg ttgatttaaa ggacaaacta tccacagatt tg 412
```

<210> 468

<211> 412

<212> DNA

<213> Human Papilloma Virus subtype MM8 (21-432/412 bp)

<400> 468

```
tatatgctgg tttaatcaat tgtttgtcac ggtggtggat accaccgcga gcaccaattt 60
tactattagt gctgctacca acaccgaatc agaataaaa cctaccaatt ttaaggaata 120
cctaagacat gtggaggaat atgatttgca gtttatattc cagttgtgta aggtccgtct 180
gactccagag gtcatgtcct atttacatac tatgaatgac tccttattag atgagtggaa 240
ttttggtggt gtgccccctc cctccacaag tttagatgat acctataggt acttgcagtc 300
tcgcgccatt acttgccaaa agggggccgc cgccgccaag cctaaggaag atccttatgc 360
tggcatgtcc ttttgggatg tagatttaaa ggacaagttt tctactgatt tg 412
```

<210> 469

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide

<400> 469

ttttttttttt ttttt 15

<210> 470

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide

<400> 470

gcccagactg tgggtggcag 20

<210> 471

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide

<400> 471

ccaccaactg ctttagcaccc c 21

<210> 472

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide

<400> 472

tgcagcgtac tccccacatc a 21